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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/599,172 | 09/21/2006 | Jeon-keun Oh | 20345/0205419-US0 | 5307 |
| 7278 | 7590 | 11/03/2009 | | |
| DARBY & DARBY P.C. P.O. BOX 770 Church Street Station New York, NY 10008-0770 | | | EXAMINER SCULLY, STEVEN M | |
| | | | ART UNIT 1795 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/599,172

Applicant(s)

OH ET AL.

Examiner

Steven Scully

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 6-8 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6-8 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: See Continuation Sheet
- Paper No(s)/Mail Date: _____

Continuation of Attachment(s) 6). Other: JP2004-027134 with english abstract.

**HIGH POWER LITHIUM UNIT CELL AND HIGH POWER LITHIUM BATTERY PACK
HAVING THE SAME**

Examiner: Scully S.N.: 10/599,172 Art Unit: 1795 October 26, 2009

DETAILED ACTION

1. The Amendment filed July 22, 2009 has been entered. Claims 2-5 have been canceled and claims 9-13 were previously canceled. Claim 1 has been amended to incorporate subject matter from claims 4 and 5 and claim 14 has been newly added. Accordingly, claims 1, 6-8 and 14 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. The previous claim rejections of claims 1 and 6 under 35 U.S.C. 102(b) as being anticipated by Hisamitsu et al. (US2004/0038124) are withdrawn in light of the Amendment.

Claim Rejections - 35 USC § 103

4. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US2003/0054239) in view of Hisamitsu et al. (US2004/0038124).

With respect to claim 1, Watanabe et al. disclose a lithium unit cell comprising an anode and a cathode. A cathode and an anode terminal are each connected to the unit cells. See [0046]; Figures 3 and 10. Further, Watanabe et al. disclose a collector and a

collector weld portion. See [0007]. Watanabe et al. do not explicitly state that a separation film is inserted between the anode and cathode plate for providing electric insulation. However, it is the position of the examiner that a separator is inherent in the invention of Watanabe et al. because they disclose a "unit cell" which by definition comprises an anode, a cathode, an anode current collector, a cathode current collector and a separator. The separator is required in order for the operation of a battery to occur because it prevents short circuits which would occur otherwise leading to no energy output. Inherency is not established by probabilities or possibilities. *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

Watanabe et al. disclose the terminals to be protruding from a single short side. See Figure 9A. Thus, Watanabe et al. are silent regarding the terminals protruding from either of two long sides of four sides of the rectangular anode/cathode plates. Hisamitsu et al. disclose a laminate cell having a power generating element formed by sequentially stacking positive and negative electrode plates while interposing separators therebetween; a positive tab connected to the positive electrode plates; a negative tab connected to the negative electrode plates. The tabs are drawn outward from end edges of long sides of the cell package. See abstract. This is done so that the internal resistance of the cell is reduced by having a shorter conductive path to the terminal. See [0038]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to extend the terminals from a long edge of the battery because Hisamitsu et al. teach that it reduces the internal resistance of the cell. Watanabe et al. disclose tabs which are smaller than half the length of the side and that can be

approximated as about 1/4 of the length. See Figures 9 and 10. Further, it is the position of the examiner that the specification does not provide evidence for the criticality of the width of the terminals.

With respect to claim 6, Watanabe et al. disclose the current collectors to have a collector weld portion. See [0007]. Therefore, the terminals may be connected to the current collector through welding to this area.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US2003/0054239) in view of Hisamitsu et al. (US2004/0038124) as applied to claims 1 and 6 above, and further in view of Kelley et al. (US2004/0191632).

With respect to claim 7, Watanabe et al. and Hisamitsu et al. are silent regarding a coating on the cathode plate connecting part and the anode plate connecting part. Kelley et al. disclose a battery having a tab (21) formed on a current collector (20) wherein the tab is coated with a conductive material having a metal that is more conductive than the current collector to provide structural support for the tab (21) and create a suitable electrical connection capable of handling high currents. See [0025]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a coated layer between the current collector and the tab because Kelley et al. disclose it to create a suitable electrical connection capable of handling high currents.

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US2003/0054239) in view of Hisamitsu et al. (US2004/0038124) as applied to claims 1 and 6 above, and further in view of Brodd (US5,498,490).

With respect to claims 7 and 8, Watanabe et al. and Hisamitsu et al. are silent regarding an adhesive being used to connect the terminals to the current collectors. Brodd discloses a battery having current collectors which are adhered to electrodes (i.e. terminals) using a resistive adhesive layer (41) such as a conductive plastic. By doing so, the thickness and resistivity of the adhesive layer are controlled so as to introduce into the current flow path of each cell a controlled resistance. See column 3, lines 39-58. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an adhesive coating between the current collector and the terminal because Brodd teaches it to allow for the value of the resistance to be controlled.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US2003/0054239) in view of Hisamitsu et al. (US2004/0038124) and Brodd (US5,498,490) as applied to claims 7 and 8 above, and further in view of Miyazaki (JP2004-027134).

With respect to claim 14, Watanabe et al. in view of Hisamitsu et al. and Brodd do not disclose the highly conductive material is at least one of a gold nanotube or a carbon nanotube.

Miyazaki discloses an electrically conductive adhesive produced by mixing electrically conductive particles consisting of carbon nanotubes with a binder resin to provide an electrically conductive adhesive having improved conductivity and retention of adhesive strength. See abstract. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the adhesive of Miyazaki in the battery of Watanabe et al., Hisamitsu et al. and Brodd because Miyazaki teaches it provides improved conductivity and retention of adhesive strength.

Response to Arguments

8. Applicant's arguments filed July 22, 2009 have been fully considered but they are not persuasive. Applicant argues:

a) Hisamitsu does not disclose the protruded structure of the cathode terminal and the anode terminal protruding in the same direction on the long side.

The Examiner notes that this is true. However, Watanabe et al. disclose the terminals from the same side. Watanabe et al. disclose they are extending from a *short* side of the battery. See Figure 9A. Hisamitsu et al. is combined with Watanabe et al. to have the terminals extending from a *long* side of the battery because it would lead to a reduction in the internal resistance of the cell by having a shorter conductive path to the terminal. See [0038] of Hisamitsu et al.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Scully whose telephone number is (571)270-5267. The examiner can normally be reached on Monday to Friday 7:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571)272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. S./
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795